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Application Number 10/539188

Supplemental Amendment to Amendment and Response filed on August 12, 2009
responding to the Office Action dated May 12, 2009

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) A method for deuteration of a compound represented by the general formula [1]:

R^1-X-R^2 [1]

wherein, R^1 represents an alkyl group, an alkyl group having at least one carbon-carbon double bond and/or at least one triple bond, an aralkyl group, or an aralkyl group having at least one carbon-carbon double bond and/or at least one triple bond; R^2 represents an alkyl group or an alkyl group having at least one carbon-carbon double bond and/or at least one triple bond, an aryl group, an aralkyl group, an alkoxy group, an aryloxy group or a hydroxyl group; X represents a carbonyl group or a hydroxymethylene group; R^1 and R^2 may form an alicyclic ring together with a carbon atom contained in X ; provided that R^2 represents an alkyl group, an alkyl group having at least one carbon-carbon double bond and/or at least one triple bond, an aryl group or an aralkyl group when X is a hydroxymethylene group,

comprising reacting the compound represented by the general formula [1] under neutral condition with a deuterated solvent other than D_2O in the co-presence of an only one activated catalyst selected from a palladium catalyst, a platinum catalyst, a rhodium catalyst, a ruthenium catalyst, a nickel catalyst and a cobalt catalyst;

provided that when the compound represented by the general formula [1] has at least one carbon-carbon double bond and/or at least one triple bound, the catalyst activated in advance is used as the activated catalyst.

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2. (Original) The method for deuteration according to claim 1, wherein X is a carbonyl group in the general formula [1].

3. (Original) The method for deuteration according to claim 1, wherein X is a hydroxymethylene group in the general formula [1].

4. (Canceled)

5. (Previously Presented) The method for deuteration according to claim 1, wherein the deuterated solvent is deuterium oxide (D_2O).

6. (Currently Amended) The method for deuteration according to claim 1, wherein the only one activated catalyst is one obtained by activating a non-activated catalyst selected from a palladium catalyst, a platinum catalyst, a rhodium catalyst, a ruthenium catalyst, a nickel catalyst and a cobalt catalyst by contacting with hydrogen gas or heavy hydrogen gas.

7. (Previously Presented) The method for deuteration according to claim 6, wherein the contact of the non-activated catalyst with hydrogen gas or heavy hydrogen gas is conducted in a deuteration reaction system.

8. (Currently Amended) The method for deuteration according to claim 1, wherein the only one activated catalyst is a catalyst comprising an activated palladium based catalyst.

9. (Original) The method for deuteration according to claim 8, wherein the activated palladium based catalyst is an activated palladium carbon.

10. (Canceled)

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11. (Currently Amended) A method for deuteration of a compound represented by the general formula [1]:

R^1-X-R^2 [1]

wherein, R^1 represents an alkyl group, an alkyl group having at least one carbon-carbon double bond and/or at least one triple bond, an aralkyl group, or an aralkyl group having at least one carbon-carbon double bond and/or at least one triple bond; R^2 represents an alkyl group or an alkyl group having at least one carbon-carbon double bond and/or at least one triple bond, an aryl group, an aralkyl group, an alkoxy group, an aryloxy group or a hydroxyl group; X represents a carbonyl group or a hydroxymethylene group; R^1 and R^2 may form an alicyclic ring together with a carbon atom contained in X ; provided that R^2 represents an alkyl group, an alkyl group having at least one carbon-carbon double bond and/or at least one triple bond, an aryl group or an aralkyl group when X is a hydroxymethylene group,

comprising reacting the compound represented by the general formula [1] under neutral condition with a deuterated solvent in the co-presence of an only one activated catalyst selected from a palladium catalyst, a platinum catalyst, a rhodium catalyst, a ruthenium catalyst, a nickel catalyst and a cobalt catalyst;

provided that when the compound represented by the general formula [1] has at least one carbon-carbon double bond and/or at least one triple bound, the catalyst activated in advance is used as the activated catalyst, and

the compound represented by the general formula [1] is tricyclo[5.2.1.0^{2,6}]decan-8-ol, and the activated catalyst is a catalyst comprising palladium carbon and platinum carbon.

12. (Original) Tricyclo[5.2.1.0^{2,6}]decan-8-ol wherein deuteration ratio thereof is 60% or more.

13. (Previously Presented) The method for deuteration according to claim 1, provided that when the compound represented by the general formula [1] has at least one carbon-

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carbon double bond and/or at least one triple bound, hydrogen gas or heavy hydrogen gas is not present in a deuteration reaction system.

14. (New) The method for deuteration according to claim 1, wherein the only one activated catalyst is a catalyst comprising an activated platinum catalyst.

15. (New) A method for deuteration of a compound represented by the general formula [1]:

R^1-X-R^2 [1]

wherein, R^1 represents an alkyl group, an alkyl group having at least one carbon-carbon double bond and/or at least one triple bond, an aralkyl group, or an aralkyl group having at least one carbon-carbon double bond and/or at least one triple bond; R^2 represents an alkyl group or an alkyl group having at least one carbon-carbon double bond and/or at least one triple bond, an aryl group, an aralkyl group, an alkoxy group, an aryloxy group or a hydroxyl group; X represents a carbonyl group or a hydroxymethylene group; R^1 and R^2 may form an alicyclic ring together with a carbon atom contained in X ; provided that R^2 represents an alkyl group, an alkyl group having at least one carbon-carbon double bond and/or at least one triple bond, an aryl group or an aralkyl group when X is a hydroxymethylene group,
comprising reacting the compound represented by the general formula [1] under neutral condition with a deuterated solvent in the co-presence of an only one activated catalyst selected from a palladium catalyst, a platinum catalyst, a rhodium catalyst, a ruthenium catalyst, a nickel catalyst and a cobalt catalyst;
provided that when the compound represented by the general formula [1] has at least one carbon-carbon double bond and/or at least one triple bound, the catalyst activated in advance is used as the activated catalyst, and

the compound represented by the general formula [1] is tricyclo[5.2.1.0^{2,6}]decan-8-ol, and the activated catalyst is a catalyst comprising platinum carbon.